Preliminary study on automatic feedback in formative assessments

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ABSTRACT – This paper describes a study that has been carried out as a preliminary study for automatic feedback in formative assessments for Malaysian students in higher education. Learning Outcomes (LO), which are essential for quality standards, usually are achieved when students can manage and organize information to learning. How do we know if the students really understand and demonstrate their understanding align with the LO. In the last decade there has been an increasing interest in harnessing technology to deliver learning and assessment activities that simultaneously assist students' learning and improve academic productivity in higher education in the face of ever increasing class sizes and diminishing resources. However, to assess the student's understanding is more crucial. This preliminary study involves distributing online survey related to the student's experience and opinion in online learning. The objective of this research gauge the characteristics of effective feedback in designing and implementing automatic feedback in the formative assessment that can further improve students' performance.

1. INTRODUCTION

Formative assessment is defined globally as an ongoing, flexible, and more informal diagnostic tool. On the other hand, summative assessment is an evaluation of the sum product of the lesson [1]. Summative assessments are more formal, structured, and often used to normalize performance to be measured and compared. It is understood that formative assessments play a vital role in teaching and learning. It assists in improving the students' performance in the course. Formative assessments also provide meaningful input to the lecturers in terms of the teaching strategies used.

Studies have shown that getting feedback has a significant positive impact on learning outcomes. Even though the number of students in higher education in Malaysia is remarkably increasing over the last couple of decades, we have not seen a corresponding change in focus regarding assessment. In [2], the authors point out that this is problematic because it ignores how feedback contributes to students' self-understanding and motivation, emphasizing the importance of activating the student and using teacher assessment, students' self-assessment. Feedback is vital for developing meta-cognition and establishing good study habits and study

and examination techniques. Therefore, it is crucial to address this, especially in the case of novice students.

However, it is cumbersome and time-consuming to provide timely and effective feedback to individual students in a course with many students, aside from returning their marks. Managing such a vast amount of written feedback is also tiring. As a result, few lecturers do not provide students with formative assessments, probably because of the time it takes to prepare and, most importantly, no time to provide adequate written feedback afterward. This might hamper students' attainments of the Course Learning Outcomes (CLOs). It is known that in Outcome-Based Education (OBE), the use of Formative Assessments is highly required in order to achieve the CLO of the course [3-7].

We gathered feedback from 52 Computer Science students who studied for a degree in Computer Science in their second year. The results show a positive response from the students, indicating that automatic feedback helps them learn. More specifically, this paper is to answer the following research questions:

a) What are the characteristics of effective feedback in teaching and learning that improve students' performance?
b) Is the performance of students better after receiving automatic feedback on their formative assessments?

2. METHODOLOGY

In this section, the preparation and the process of this evaluation are described. In this study, 52 Computer Science respondents are selected from one public university in Malaysia to answer an online survey related to their experience and opinion in online learning. The study is conducted at the end of the semester after the students finished their learning and examinations. This small sample is used to gauge the characteristics of effective feedback in designing and implementing automatic feedback in formative assessments that can further improve students' performance.

3. DISCUSSIONS AND FINDINGS

For this study, questionnaires have been distributed to 52 students from Computer Science students. The questionnaire was distributed at the end of their semesters, and the respondents have experienced online learning for at least two semesters. Figure 1 shows that the majority

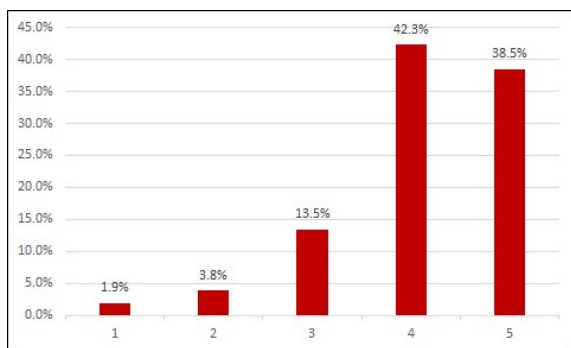of the students like to have immediate feedback.

Figure 1 "Do you like immediate feedback?"

For questions (refer Figure 1) *"Do you like immediate feedback?"* From the results, 19 (36.5%) students strongly agreed, and 23 (36.5%) students agreed to have immediate online learning feedback. Question (refer Figure 2) on "*Do you think that the online activities help you understand this topic?*". From the results, most of the students agree that online activities help them understand the topic for the subject. 32.7% strongly agree, 30.8% not sure.
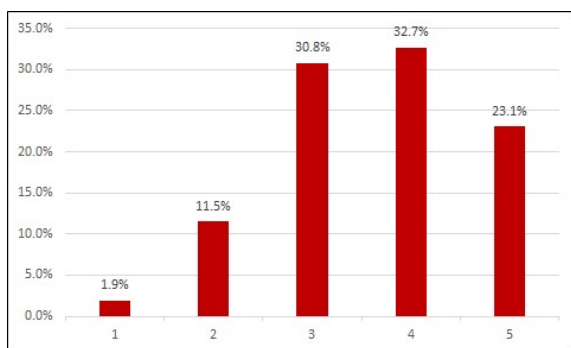

Figure 2 "Do you think that the online activities help you understand this topic?"

We can also see that few students did not agree that online activities help them understand the topic. From these results (refer to Figure 1 and Figure 2), we assume that having feedback will help the students understand their learning process. This can be further related to the question "*Having the correct answer immediately?*" From this question, 28.8% strongly agree, 34.6% agree, 28.8% neutral, 5.8% disagree, and the remaining 1.9% strongly disagree. Thus, students expect a lecturer to provide feedback for their answers.

4. CONCLUSION

From the preliminary study results, in this early stage it can be concluded that automated feedback can help students improve their learning experience. Students prefer to have feedback instead of only having correct answers displayed upon answering. Students' performance is assumed to be better after receiving automatic feedback, yet this needs to be studied in a further investigation for more accurate results.

5. ACKNOWLEDGMENT

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